

# Teaching An Old Dock New Tricks

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As manufacturing companies find more and more in the way of technology improvements around material handling, the loading dock has not been ignored. Interestingly, the customer concerns driving these tech updates seem to reflect the old adage that the more things change, the more they stay the same. Not surprisingly, energy savings and safety around the loading dock seem to be the two dominant issues.

### Keeping Energy Concerns at Bay

According to Gary Buechel, Vice President of Rotary Products, Inc., “Trends in dock product innovations will include closer attention to customized products that meet specific needs and attempts to seal areas of energy loss both large and small, including under and around levelers,”

It is with these issues in mind that drive companies like Milwaukee-based dock equipment manufacturer Rite Hite to offer an exclusive, engineered program that calculates the energy cost savings that can be realized with a variety of dock sealing configurations. Using ASHRAE methods for measuring air infiltration and wind speed, and national data on local weather, the tool considers the elements of each specific situation to calculate the actual dollars that would be lost through a company’s unsealed dock openings. According to Rite Hite, choosing an enclosure that seals the open trailer door hinge gaps can save from \$200 to \$600 or more per year in preventable energy loss, depending on the location and the specifics of the facility and loading practices.

Besides these gaps, manufacturers should look closely at poor seals (especially at the underside of the dock or pit floor) and open-close time of dock doors. “Facilities are blocking off every opening around the dock levelers and overhead doors, to prevent external air and elements from creeping into the building,” says Chris Cummings, Save-T Solutions Sales Manager for TMI LLC. “Plant and operations managers realize that every time outside air infiltrates the building, it costs money.”

In order to take a few quick steps to assess your facility for efficiency, Cummings recommends a walk around your loading dock when the door is closed. If you feel any air coming around your door or leveler, you have a reason to look into adding energy saving products like dock seals, air curtains, or simple strip doors. “Dock seals and air curtains are two of the easiest and most cost-effective solutions for preventing outside air from infiltrating your facility,” says Cummings.

### From The Ground Up: Poor Design in Loading Docks

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Ashley, OH-based Rotary Products has been manufacturing custom-made loading dock equipment for decades, and been in business since 1958. According to Gary Buechel, experience has taught him that not all loading docks are created equal. "After 35 years in this industry, I continue to be amazed by the frequency of poor loading dock design," he says.

According to Rotary Products, the most efficient loading docks have the fewest number of variables. "A large business with a captive fleet has the luxury of standardizing trailer and dock door sizes, or if more than one type of truck is needed it may be possible to use some doors for one truck type and other doors for the other. Other businesses may be in a position where they have to deal with a wide variety of common carriers and a variety of their own trucks that may be narrow, short, or have characteristics that make the dock equipment more expensive and less efficient," says Buechel. "Designing a loading dock is not rocket science, but there are many ways to make mistakes and they are all too common. The best approach is to plan ahead and consult a professional with specific expertise in loading dock design." (For more design considerations, see Figure 1, page 33)

Vida Novak, Vice President of material handling equipment manufacturer Air Technical Industries, also stresses that there are equipment options that exist to help work with less than optimal loading docks. ATI manufactures dock lifts designed to be used on any flat floor, indoors or outdoors, often in low lying areas where a loading ramp is not feasible or not available for loading and unloading trucks, or transferring the load from one level to the next. "The dock lift enables a customer to completely eliminate any construction costs or concrete work involved in either digging a pit or building up a dock bay," says Novak. Ideal candidates, he says, might be users who are leasing a loading dock and may not have the ability to build their own or make adjustments.

### **Safety First**

According to TMI's Cummings, safety concerns still sit at the forefront of his company's considerations when developing products. One cause for concern has to do with the widespread problem of space constraints for manufacturers. Many, says Cummings, resist the high cost investments in building additions and instead use planted, unhitched trailers on unused or low usage loading docks. "It gives them additional inventory capacity at affordable prices," says Cummings, "but it also opens up an additional safety hazard." Worst case scenario is that, depending on the weight and age of the trailer and the surface it is stationed on, people and inventory are in danger of trailer collapse.

In this case, TMI recommends trailer stands as simple, economical, and effective solutions for protecting workers and property when unloading unhitched trailers. Trailer stands are placed in the front of the trailer to prevent the front end from collapsing.

Buechel adds that industrial users should be cautious of the risks of inadequate

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sealing, namely in the wet or icy slip vulnerability that could result. In addition, "Dock levelers are heavy steel machines with moving parts that have the potential to easily remove fingers or toes in the presence of untrained or careless workers." Unfortunately, material handling product vendors can't account for user error, but they can try to make their equipment as idiot-proof as possible. Says Buechel: "Cutting edge dock design involves integration of all equipment to reduce the likelihood of accidents."

### Designed for Success

"Like so many other things, a loading dock can be much more complicated than what a person might think," explains Gary Buechel of Rotary Products. "Optimum dock design involves the coordination of many components such as door opening height and width, dock height, bumper projection, clearance above and around doors, flatness of the approach to the dock, range of truck heights and widths, type of freight and whether full access to the truck is required, and special characteristics on the trucks such as steps or lift gates." Other essentials include:

**Bumper projection.** The top of the trucks need to be kept a minimum of 4" away from the wall. The bumpers at the bottom of the dock need to protrude out far enough to keep the top of the truck off the wall, so the greater the downward slope on the approach towards the building, the larger the bumper projection needs to be. "This may seem too simple to make such a big deal out of, but the fact is that over the years we have seen this mistake made all too often," says Buechel. Pit levelers generally come with 4" projection dock bumpers, so a standard leveler with standard bumpers set up with a pit to standard specifications combined with a sloped approach is a recipe for disaster. "If the loading dock does not have proper bumper projection, nothing else matters; the loading dock is doomed."

**Door size.** Unfortunately, there is no right answer to the "best" door size; it depends. A very common door opening height is 10'. Combined with a standard 4' dock height (or taller) the top of the door is fourteen feet (or more) off the ground. Considering that the maximum height trucks are 13'6", it is easy to understand the difficulty of getting a good seal at the top of the door when the door is higher than the highest truck. The question of door opening width is no less definitive. Most dock doors are 8', 9', or 10' wide. "Obviously, the narrower the door opening the easier it is to get an efficient seal, but the range of truck widths serviced at the dock and the extent of required access to the trailer width will not only dictate the proper door opening width, but will also determine what type of seal or shelter will be best."

**Seals.** Although there are circumstances that would dictate that the opening size should be wider and/or taller than the truck, this is not always the case and it is all too common to see oversized door openings on new construction without any regard to common sense. In addition to considerations regarding optimum opening sizes and bumper projections, the designer of the loading dock needs to look at which type of dock boards, dock levelers, wheel chocks, and truck restraints would be most advantageous for the job.

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